



Forest Health Protection

Pacific Southwest Region

Northeastern California Shared Service Area

File Code: 3420

Date: November 16, 2023

To: District Ranger, Mt. Hough RD, Plumas NF

Subject: Decay in *Porodaedalea pini* infected pine in Greenville Campground (FHP Report NE23-03).
(Lat 40.1549 Lon -120.9559)

Introduction:

The purpose of this paper is to report the decay found in the boles of pine trees in Greenville Campground which had *Porodaedalea pini* ((Brot.) Murrill 1905) fruiting bodies (conks) growing on the boles.

Overview:

In late April and early May 2023, Bill Woodruff (R5 FHP Plant Pathologist) found fruiting bodies (Figure 1) of the decay fungus *P. pini* on 49 large pine trees (forty-eight ponderosa pines and one Jeffrey pine) in Greenville CG (Lat 40.1549 Lon -120.9559). The average infected tree was 24" DBH and 120' tall. The 49 pine trees were flagged for mitigation. Most of the trees had five to ten *P. pini* conks on the bottom 16-foot log. About 5 of the trees had up to ten more conks higher on the bole. The USFS Region 5 *Hazard Tree and Mitigation Technical Report* rates pine trees with five or more *P. pini* conks as having a high failure potential.

On May 9, three Mount Hough District staff (Maurice Huynh, Silviculturist; Leslie Edlund, Public Services Officer; and Alex Terry, Wilderness/Trails Tech) evaluated some of the infected trees with Woodruff and decided to mitigate the hazard trees before the campground opened for the summer. Plumas NF fire crew fell 37 of the infected trees; all which had at least five conks and were near campsites. Freshly cut stumps were treated with the fungicide Cellu-Treat to prevent Heterobasidion root disease from becoming established. Most logs from these trees were decked for public firewood use. Decked logs offered opportunity to examine log ends for decay. Most of the observed decay was much less than anticipated and did not appear serious enough to weaken the trees to result in an immediate high potential for tree failure. Of course, all decay gets worse in time, so mitigation was warranted. The following pages illustrate the decay seen in the trees.

Figure 1. PP "A" had at least 15 *P. pini* conks and PP "B" had at least 20 conks.



***P. pini* decay observed in the stumps and bucked logs:**

Most of the observed *P. pini* decay in the felled pine trees and stumps was confined to the heartwood. The more heavily infected boles had decay in the heartwood and some the sapwood (Figure 2). Generally, trees with less than ten *conks* had *P. pini* decay confined to a fraction of the heartwood. (Figures 3). Figure 4 shows the decay at the base of PP “A” (page 1); a tree with at least 15 *conks*. Figures 5 and 6 (page 3) shows the decay in the bole of PP “B” at both the stump and the log end near the uppermost *conk*. PP “B” was the most heavily infected tree; having more than 20 *conks*. Figure 7 (page 4) shows the decay in a PP stump associated with *P. pini* six *conks* near the stump; discolored wood connecting a *conk* on the stump to the heartwood is visible. Figure 8 shows the ends of four decked logs.

Figure 2. Decay in sapwood and heartwood.



Figure 3. Decay in a PP tree which had five *conks* near the stump.



Figure 4. Decay in the base of PP “A” - Figure 1; a tree with at least 15 *conks*.



Figure 5. Decay in the base of PP “B” - Figure 1; a tree with at least 20 conks.



Figure 6. Decay near the uppermost conk, about 30 feet up the bole of PP “B” - Figure 1.



Figure 7. Decay in an 18" PP stump with six *P. pini* conks (red ovals) near the stump cut.



Figure 8. Decay in the ends of four large decked pine logs



Discussion:

The Mt. Hough Ranger District is commended for promptly mitigating the *P. pini*-infected pine trees in Greenville Campground prior opening the campground for the season.

A few of the mitigated trees had more than fifteen *P. pini* conks and decay in both heartwood and sapwood. Even though most of the observed decay would not seriously weaken the trees, it was learned that mitigating pine trees with more than ten *P. pini* conks is prudent. The extent of decay throughout the boles of trees infected with *P. pini* is always unknown. All decay can weaken trees to some extent. Furthermore, all decay gets worse in time. The observations in Greenville Campground suggest that the USFS Region 5 *Hazard Tree and Mitigation Technical Report* rating for pine trees with *P. pini* conks may merit further discussion including consideration that pine trees growing on wetter sites may decay differently.

Please contact Bill Woodruff at 530-249-7990 for more information.

/s/ Bill Woodruff

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Appendix: Pest Biology

***Porodaedalea pini* (a.k.a. *Phellinus pini*; *Fomes pini*)**

Red ring rot, also called “red ring rot” and “white speck”, is caused by a wood decay fungus, *Porodaedalea pini*, that attacks Douglas-firs, pines, true firs, hemlock, and rarely incense-cedar. It occurs throughout the coniferous forests of the world, and is the single most damaging heart rot organism in the West. According to polypore expert L.O. Overholts (1953), this fungus “causes a greater timber loss through decay of the heartwood of living trees than does any other fungus.”

Red ring rot attacks young-growth as well as old-growth trees. It usually infects through branch stubs, and rarely through open wounds. Thus, this fungus may cause serious heart rot problems in managed stands of the future.

The perennial, woody fruiting bodies or conks that arise from the branch stubs or knots of living trees are the best indicators of decay. Sometimes only punky knots bearing the inner portion of the fruiting body remain on the stem. These punky knots may later be overgrown by new wood, becoming swollen knots that are the only symptom of decay. When conks or swollen knots are present, assume that advanced decay extends about 3-5 feet above and 5-7 feet below the indicator. If conks or swollen knots are visible along much of the stem, heart rot could be extensive.